

Nyssia Zonaria (Pl. XIV. fig. 9). The characters are entirely those of the female, with the exception of the antenna on the left side male; the rudiments of the wings are longer on the left side. It was taken by Mr. B. Cooke, at New Brighton, March, 1838.

XXX. *Extracts from a Paper by Zeller published in the Linnæa Entomologica, vol. 3, on the "Leaf-mining Tineæ, with Eye-Caps" (Augendeckeln), with Remarks by H. T. Stainton, Esq.*

[Read July 3, 1848.]

My object being to draw attention to the different species and their habits, in order to lead to the discovery in this country of those which are still unknown to us, I shall merely quote the distinguishing characters of those species not previously described as indigenous. Zeller's paper includes the following genera: *Lyonetia*, *Phyllocnistis*, *Cemiostoma*, *Opostega*, *Bucculatrix*, *Nephticula*, *Trifurcula*, and *Tischeria*, corresponding to portions of our genera *Argyromiges*, *Microsetia*, and *Aphelosctia*.

In his genus *Lyonetia* he has four species, two of which only are known to us.

"Sp. 1. *Clerckella*, Linn." Linn. Ent. vol. 3, p. 252.

Vol. 2, pl. 2, f. 27—30.

This is the species described by me under this name in the Zoologist, p. 2159, and identical with the *autumnella* of Curtis, and the *nivella* and *semiaurella* of Stephens, which latter is the variety *cereella* of Treitschke.

"This species is very widely dispersed, and probably abundant in many places, but not sufficiently observed.

"The first specimens in the year I beat from birch in the first days of May, but scarce and only the varieties. After that, *Clerckella* flies from June through the whole of the summer and autumn. I beat it abundantly from the wild apple and pear; but mostly from birch bushes.

"The variety *cereella*, not scarce in several places in Tuscany in March, April and June (Mann)."

It appears thus, from Zeller and Mann's observations, that the variety *cereella* (our *semiaurella*) occurs in the early spring in March, April and May, but not the typical *Clerckella*; the same

thing has been observed in this country, and the specimens taken in March and April have, I believe, always the appearance of hibernated specimens. Several specimens of *semiaurella* were beat out of fir-trees at West Wickham, by Messrs. Douglas and Bedell at the end of March this year (1848).

“ Sp. 2. *Prunifoliella*, Hübn.” Linn. Ent. vol. 3, p. 259.

This is the *Clerckella* of the Linnean Cabinet.

“ Certainly distinct from the preceding; larger, and distinguished by the oblique brown dorsal streak, curved posteriorly, on the anterior wings, and the entirely differently-coloured apex of the wing.”

“ Scarce, but widely dispersed; I took one on the 7th of August in a garden at Berlin, one near Glogau on the 7th July, on a fence, and one on the 29th July, on the Reinerz Seefeldern, (salt marshes?) where, as far as I know, no *Prunus* grows.”

“ Sp. 3. *Padifoliella*, Hübn.” Linn. Ent. vol. 3, p. 261.

This species is described by me in the “Zoologist,” p. 2160, under this name; it is taken in the autumn at Whittlebury. It appears much rarer on the continent; Zeller had *only seen four* specimens, and states that he was greatly in doubt whether it was not a variety of *prunifoliella*, in the same way as *æreella*, Tr. is of *Clerckella*.

“ Mann took several specimens in June, 1835, near Reichstadt in Bohemia, on *Prunus padus*; in the Prater, near Vienna, in July, on elms.” “ Bouché bred it in Berlin from birch leaves.”

“ Sp. 4. *Pulverulentella*, F. v. R.” Linn. Ent. vol. 3, p. 263.

“ This species, of the size and form of the preceding, only with the anterior wings rather broader, is distinguished by the want of distinct markings, particularly by the pale apex of the wing.”

“ The specimen in Fischer's Collection was from Bohemia; that now before me, from Mann's, was taken alone on an ash at Tivoli, near Vienna, in June, 1842. Both specimens are males.”

In Zeller's genus *Phyllocnistis* he has only two species, both probably occurring in this country.

“ Sp. 1. *Suffusella*, Z.” Linn. Ent. vol. 3, p. 266.

Vol. 2, pl. 2, f. 31—34.

“ Rather larger than *saligna*; differs from it by wanting the

brown double line which springs from the base of the anterior wings in the latter."

"This species occurs near Vienna (F. R.); in Italy (near Pratovecchio in Tuscany, at the end of March, common—*Mamm*), where its food, without doubt, is the Lombardy poplar; and near Berlin, Frankfort and Glogau (very abundant), and Warmbrunn in Silesia. It flies, after having passed the winter in the pupa state, not altogether scarce, in May, then abundant at the end of June, and through the following months to the end of September, probably even in October. It frequents poplar woods, from the boughs of which they are beaten morning and evening, and very easily caught. They sit on leaves, stems of trees, and fences."

"Sp. 2. *Saligna*, Z." Linn. Ent. vol. 3, p. 270.

This species is described by me in the "Zoologist," p. 2158, as the *cerasifoliella* of Hübner, and I there give as synonymes Stephens' *unipunctella*, and Zeller's figure of the preceding, not being at all aware there were two species so closely allied. But as Stephens makes no mention of the brown double line proceeding from the base of the wings, his description cannot apply to this species, and is more applicable to the preceding; and Hübner's figure of *cerasifoliella* also wants the double lines, and is probably identical with the preceding, therefore his name certainly cannot be applied to this species, and that of Zeller's must be retained. Wood's figure represents this species. We probably have both species in this country, but I am not aware of having seen any specimens of *suffusella*.*

"This species differs from the preceding in being smaller, and especially by the brown double line, which goes from the base of the anterior wings to the middle of the disk.

"This species is just as plentiful as the preceding, and flies on calm, warm, or even cool evenings, at the end of April and in May, then from the middle of June to late in the autumn. It only flies among willow-bushes."

In Zeller's genus *Cemiostoma* he has three species, two of which occur here.

"Sp. 1. *Spartifoliella*, Hübn." Linn. Ent. vol. 3, p. 273.

Vol. 2, pl. 2, f. 35—39.

This is the species described by me, under this name, in the "Zoologist," p. 2158, and is the *spartifoliella* of Stephens, and the *punctaurella* of Haworth.

* Since writing the above I have obtained a specimen of *suffusella*, which I beat off a Lombardy poplar, at Lewisham, on the evening of the 25th of June.

"Sp. 2. *Zanclæcella*, Z." Linn. Ent. vol. 3, p. 277.

"This species is considerably smaller than the preceding, and easily distinguished from it by the want of the yellow costal streak beyond the middle of the anterior wings.

"Of *Zanclæcella* (placed, in my descriptions of Italian species, as an *Opostega* without a name) I took two specimens near Messina in March and April, which I took for our *spartifoliella*. The place in which I beat them from the bushes of *Arbutus unedo* and *Cytisus triflorus*, contains, as far as I recollect, no *Spartium junceum*. Probably this scarce species feeds on the *Cytisus*."

"Sp. 3. *Scitella*, Metzcn." Linn. Ent. vol. 3, p. 278.

This species, the *Clerckella* of Stephens, is described by me under the name of *scitella*, in the *Zoologist*, p. 2157.

In Zeller's genus *Opostega* (as now restricted), he has four species, of which two are known to us.

"Sp. 1. *Salaciella*, Tischer." Linn. Ent. vol. 3, p. 280.
Vol. 2, pl. 2, f. 42, 43.

This species is briefly described by me in the *Zoologist*, p. 2081, in a note. It is the *cygnipennella* of Mr. Bentley's and many other cabinets.

"This is easily recognized in this genus by the spotless, snow-white anterior wings. It would be most readily confounded with the ♀ *Elach. cygnipennella*, which, being generally smaller than its ♂, comes very near to *salaciella* in size; but the quite simple antennæ of *cygnipennella*, not being provided with an enlarged joint at the base, readily distinguish it."

"*Salaciella*, discovered near Dresden by Tischer, is very scarce near Nixdorf, in Bohemia, and also occurs, according to Treitschke, near Vienna; and, according to Herrich Schaffer, near Ratisbon."

"Sp. 2. *Reliquella*, Z." Linn. Ent. vol. 3, p. 282.

"Hitherto I had considered a single female as a variety of *crepusculella*, in which the spot at the apex of the wing was wanting; however, the streaks in the middle of the costa and inner margin are also wanting, and the yellowish transverse streak at the apex is nearly straight. Besides, I have since obtained a male similarly marked, so that I can no longer doubt its being a distinct species. *Crepusculella* and *auritella* are easily recog-

nized by the black spot at the apex of the anterior wings. *Salaciella* has not a yellowish transverse streak; and the yellowish tint, though certainly in the same place as in *reliquella*, is very indistinct, and only visible in certain lights."

"I took my very beautiful ♀ near Glogau, on the 20th of June, on a grassy slope under aspen trees: my equally fine ♂ near Reinerz, on an open grass-plot, on the 16th of July, thus much later than the female."

"Sp. 3. *Auritella*, Hübn." Linn. Ent. vol. 3, p. 283.

Not the *auritella* of Stephens (which is the next species), and I believe not hitherto detected in this country.

"Size of the largest *salaciella*, easily distinguished from this and the second and fourth species, by the rather large brown inner marginal spot on the anterior wings."

"I obtained a pair from Mecklenburg." "A single ♀ was taken near Frankfort-on-the-Oder on the 25th of June, in a field, on a thistle."

"Sp. 4. *Crepusculella*, F. v. R." Linn. Ent. vol. 3, p. 284.

Vol. 2, pl. 2, f. 40, 41.

This is the *auritella* of Stephens, and Wood's figure 1416 represents the species very distinctly.

"This species occurs near Reichstadt, in Bohemia, where, according to F. v. R.'s notice, it flies in July, on the margins of ponds, from half-past seven to eight, neither earlier nor later. Near Glogau I found it in moist shady places in alder or other leafy woods, in the second half of June and in July, always scarce and singly, yet not always at twilight, but in cloudy weather also in the afternoon. It keeps quite low in grass and weeds."

In Zeller's genus *Bucculatrix* he has nine species, five of which are decidedly British.

"Sp. 1. *Cidarella*, Tischer." Linn. Ent. vol. 3, p. 287.

"Easily distinguished in this genus by the brown anterior wings, with two pair of whitish opposite spots."

I must confess to some uneasy doubts, whether this be not identical with my *Demaryella* (*Zoologist*, p. 2157); but on a very close examination of my single specimen, I have been unable to discover any *eye-caps*, but the hairs of the head are so long, it is quite possible they may be there, but concealed: the hinder tibiæ

are certainly clothed with long hairs, as Zeller describes *cidarella*; but he makes no mention of an indistinct basal streak, and in the disposition of the spots there are several discrepancies. His insect frequents alders in May, June and July.

"This little known species occurs in Bohemia very rarely (F. v. R.); in Saxony, near Schandau, (Tischer); near Glogau, on alder bushes, in May, and the beginning of June, scarce; probably also in July, in Prussia, near Dantzic, (Tiedemann); and in Livonia, at Kohenhusen, (Lienig); in Tuscany, near Prato-vecchio, at the beginning of June, on the stems of alders, (Mann)."

"Sp. 2. *Ulmella*, Mann." Linn. Ent. vol. 3. p. 288.

This is the species described by me as *Sircomella*, in the Zoologist, p. 2162. As this description was only published on the 1st of July, and Zeller's description is already published, and in this country (June 13th), *Sircomella* must sink, and the name of *ulmella* be retained. This is the *cuculipennella*, var. δ of Haworth.

"Sp. 3. *Cratægi*, Z." Linn. Ent. vol. 3, p. 290.

This is the species described by me in the Zoologist, p. 2161, under the name of *cratægifoliella*, and is the *cuculipennella* var. γ of Haworth.

"Sp. 4. *Boyerella*, Dup." Linn. Ent. vol. 3, p. 291.
Vol. 2, pl. 2, f. 44—46.

This is the species described by me under this name in the Zoologist, p. 2161, and is the *cuculipennella* of Haworth and Stephens.

"Sp. 5. *Gnaphaliella*, Tr." Linn. Ent. vol. 3, p. 293.

"On the whole resembles the preceding, but readily distinguished by the concolorous, brownish-grey antennæ." In *Boyerella* they are white, with brown annulations.

"This species occurs near Dresden, abundant near Berlin and Glogau, in sandy places, amongst *Gnaphalium arenarium*. It appears first at the end of May, and in June and July, and again at the end of August and in September. In the day they sit concealed at the foot of the plants, but at evening or in rainy weather it is easily beaten out."

“ Sp. 6. *Frangulella*, Goeze.” Linn. Ent. vol. 3, p. 295.

This is the species described by me, (Zoologist, p. 2160,) as *rhamnifoliella*, Tischer, (described by Fischer), which name, however must sink, Goeze's name having priority by more than forty years. Goeze does not describe the species himself, but refers to De Geer's description and figure. The name, as it appears in his Entom. Beitrage, vol. 4, p. 169, is *frangutella*, which is evidently a misprint for *frangulella*.

“ Sp. 7. *Hippocastanella*, Dup.” Linn. Ent. vol. 3, p. 297.

This is the *tiliella*, Dale, (in litteris), and has not yet been described as British. Mr. Dale took his specimens in Leigh Woods, near Bristol, May 20th, 1845, flying amongst limes.

“ The fine brown long line on the yellow anterior wings, from the middle to the apex of the wing, well distinguishes this species.”

“ This species is very abundant near Berlin, on old chesnut trees and limes.” “ I found it solitarily near Glogau, in a wood, and at Probsthainer Spitzberge; in both places only on lime trees.” “ It occurs in Silesia, also near Warmbrunn.” “ In Livonia, where Madame Lienig found the larvæ on limes, birches, and alders.” “ The perfect insect flies in May and June, and must, since Madame Lienig observed a second brood of the larva, fly a second time in July and August.”

“ Sp. 8. *Nigricomella*, Z.” Linn. Ent. vol. 3, p. 299.

Vol. 2, pl. 2, f. 47.

“ The very shiny, nearly bronze-coloured anterior wings, and the black hairs on the head, are peculiar to this among all its congeners.”

I was at first strongly inclined to imagine this our *atricapitella*, but the size, “ nearly the size of *gnaphaliella*,” (which latter species Zeller compares to *Boyerella*,) appears to me an insurmountable objection; added to which, Zeller says, “ Antennæ brownish, with the apex whitish,” a peculiarity that *atricapitella* does not possess.

“ Scarce in Bohemia, near Nixdorf and Reichstadt, in woods, in June and August; near Glogau likewise it is not abundant; Madame Lienig also took it in Livonia in May; Mann took three specimens near Pisa, on the 19th May, on dry grass-plats.”

“ Sp. 9. *Cristatella*, F. v. R.” Linn. Ent. vol. 3, p. 300.

“ Its concolorous dirty-grey, smooth anterior wings distinguish our *cristatella* in this genus; the structure of the antennæ distinguishes it from the much darker *Tischeria gaunacella*; its much smaller eye-caps, its smooth face and its narrower anterior wings, separate it from *Trifurcula immundella*.”

“ It flies in May, on sandy places overgrown with weeds; scarce, near Glogau, and easily overlooked, from its keeping so near the ground. On the 7th of May, 1841, towards evening, I fell in with a small company, which were swarming at one spot in the short grass. On one blade of grass sat a pair in copulâ, around which the remainder were flying. Whilst I had hardly pinned a pair of them, the whole company were as if blown away, and, notwithstanding a diligent search, I found no more.”

I now come to Zeller's genus *Nepticula*, which includes nearly all our small *Microsetiæ* (that genus being very readily divisible into three sections, of which *quadrella*, *aurella* and *Pfeifferella* may be considered the types — the *aurella* section forming the genera *Nepticula* and *Trifurcula* of Zeller).

These insects, from their extreme smallness and the consequent difficulty of pinning and setting them, have hitherto been very much neglected in this country; indeed, till last year, very many of our collections had only one or two species. Our knowledge of them is therefore very limited, and this paper of Zeller's will be most useful in assisting us rightly to separate species and unite the sexes. Zeller has thirteen species of *Nepticula*.

“ Sp. 1. *Samiatella*, Z.” Linn. Ent. vol. 3, p. 303.

“ Alis anterioribus flavo-virenti-æneis, apice violascentibus; antennarum conchula flavida, capillis maris nigris, feminae ferrugineis.

“ Known by the concolorous, clear-green bronzy anterior wings, which are violet posteriorly.” Zeller gives as synonymes “ ♂ *Microsetia atricapitella*, Haw.— ♀ *Microsetia ruficapitella*, Haw.”

Now to this I cannot agree. *Atricapitella* and *ruficapitella*, I firmly believe, are distinct species; if I am not mistaken I have taken more than one pair of *atricapitella* in copulâ on a low fence near Beckenham; moreover I appear to have both sexes of both species; besides, *ruficapitella* is much the commoner, *atricapitella* being a rare or probably local species, whereas were it the male of *ruficapitella* it should be commoner, or at least equally com-

mon. I take both species on the stems of oaks, but *atricapitella* only rarely. *Samiatella* seems very scarce, according to Zeller's remarks. "This small species is still very scarce; I took a single one near Glogau, in May, on a leaf, in the sunshine, on the lower branch of an oak; here it ran quickly on the upper side of the leaf, here and there, and appeared to seek the honey dew."

"On the 9th of May, 1847, I found a male in a garden, where it flew from the bark of a thick chesnut tree into my forceps, and ran about very briskly. I saw a female from the neighbourhood of Warmbrunn, in Silesia. Mann found this species in June, near Reichstadt, in Bohemia, and near Vienna; also in Tuscany, near Leghorn and Montenero, on elms, in April." "From Bouché I obtained five specimens, decidedly belonging here, all males."

"Sp. 2. *Subnitidella*, F. v. R." Linn. Ent. vol. 3, p. 305.

"Alis anterioribus fuscis, apice violaceis; posterioribus flavidis cinereo-ciliatis; capillis nigris, conchula antennarum fuscescentium exalbida (1 ♂ Mus. Mann).

"Distinguished from all the species in this genus, except the male *rufella*, by the yellowish posterior wings, but from this readily distinguished by the deep black head."

"This flies near Vienna, among young ash trees, in May, very scarce (Mann)."

I am not aware that this species has been observed in this country.

"Sp. 3. *Aurella*, Fab." Linn. Ent. vol. 3, p. 306.

"Alis aureis, apice violaceo, fascia postica argyrea (in fem. utrimque violaceo-inclusa); capillis maris atris, fem. ferrugineis; conchula antennarum fuscescentium pallida (alis posterioribus maris pilosquamatis)."

"In this species also the anterior wings are shining violet at the apex, but towards the base golden or bronze, and posteriorly is a broad, silvery, somewhat of a yellowish tint, thence almost golden fascia. *Lemniseella* has, instead of a golden yellow colour between the fascia and the base of the wings, only a shining yellowish brown colour, and *centifoliella* has it of a violet brown."

"I have not found this species common near Glogau; it occurs in May, on the trunks of elms, in the crevices in the bark, from which it is difficult to get it out and catch it. I received two ♂ as *gratiosella* from Vienna, F. R., where it appears not to be scarce."

Among his synonymes Zeller gives *posticella*, Stephens (he should have said Haworth), the character of which appears to be the base of the anterior wings being of a *silvery brown*. This description of colour is so very unsatisfactory, and as Haworth himself says, "A variety of the following (*aurella*) or merely an old specimen;" and as his description, which is the one copied by Mr. Stephens, was made from only a single specimen, I think we may safely sink the name *posticella*. I am well aware that there is a very general idea that in *posticella* the silver fascia is placed more posteriorly than in *aurella*; the name certainly would seem to imply something of this kind, but Haworth makes no comparison whatever between the two species—his description of *aurella* being merely a copy of the Fabrician description. Zeller seems also to include with this species an insect which is in many collections as *pygmæella* (though hardly the *pygmæella* of Haworth, which appears to have been a small specimen of *ruficapitella*, as he makes not the slightest allusion to a silvery fascia), and which appears to me identical with the ♂ *gratiosella*, F. v. R. figured in Duponchel (Supp. pl. 77, fig. 4), and which I cannot but think a distinct species; it is little more than half the size of ordinary specimens of *aurella*, and frequents hawthorn bushes in May, flying in the sunshine about the twigs like gnats.

In this insect the anterior wings are of a paler golden at the base than in *aurella*, the fascia is nearer the apex and much straighter, and the head is black apparently in *both sexes*. The specimens which I have in my collection as *aurella* have all reddish heads, yet one of them appears to be a male; but I believe I have seen specimens apparently of the same insect with black heads.

NOTE.—Since writing the above I have examined Haworth's original specimens of the *Microseticæ*, in the collection of the Entomological Society, and find that my conjecture as to *pygmæella* and *violacella* being identical with *ruficapitella* is confirmed. His *posticella* appears distinct from *aurella*, and the fascia is placed more posteriorly and is straighter, but neither of these characters are mentioned in his description, so that I am still of opinion the name should sink."

"Sp. 4. *Lemmiscella*, Z." Linn. Ent. vol. 3, p. 313.

"Alis anterioribus nitide brunneis, apice violaceo, fascia postica argyrea; capillis (♂ et ♀?) ferrugineis, conchula antennarum albida.

"After having removed, in my collection, as females of the

preceding, a pair which previously I had considered as this, I possess only two *lemniscella*, as a probably distinct species, and have two of Metzner's specimens for comparison. This *lemniscella* is so like the preceding, that I shall merely mention the difference. The anterior wings, to the naked eye blackish or brown, are under a lens *yellowish brown* to the fascia, darkest on the costa, with faint lustre, and without any mixture of violet or purple colouring. The fascia is in my small decided female very narrow, and placed obliquely. Posterior legs with thinner tibiæ shining clear grey. Antennæ of this specimen brown, on the underside shining yellowish. In the second specimen, which is pasted, and of which I cannot recognize the sex, they are throughout yellowish.

“The two specimens from Metzner, rather larger than mine, I can only consider as one species, although the one is considered as *lemniscella*, the other as *hemargyrella*. The only difference they show is, that in *lemniscella*, Metzner, the fascia on the anterior wings is yellower, and is posteriorly emarginated in the middle, and that the posterior wings are darker coloured on the surface and also the cilia. Both appear to me to be males; the abdomen with one especially is quite thin and flat, and in both it ends with a yellowish anal tuft, which divides into two longer little tufts. Their hairs-of-the-head are *pale yellow*, the eye-caps as usual, the antennæ greyish yellow and shining. On the anterior wings the cilia from the upper to the lower end of the fascia are clear grey; but on their basal half lie broad violet-brown scales, darker at the end, radiating at the apex of the wing, and there this is somewhat recurved, and in shade is black, so that it makes it appear as an ocellus. (In my specimens these scales are wanting, and the cilia pass gradually from the brown tint to gray.) These belong truly, as males, to *lemniscella*, so this is certainly a distinct species from the preceding, differing in the males by the colour of the hairs of the head.”

“*Lemniscella* is scarce near Glogau on the trunks of elms: of Metzner's specimens, one *hemargyrella* is from Steyermark, the other from Silesia.”

“Sp. 5. *Centifoliella*, V. Heyden.” Linn. Ent. vol. 3, p. 315.

“Alis anterioribus violascenti-fuscis nitidulis, fascia postica argyrea; capillis ♂ nigris, ♀ ferrugineis; conchula antennarum pallida parva.”

“This very small species differs from *lemniscella* by the anterior wings from the base being brownish, and with rather a violet

tint, which is only a little increased beyond the fascia,—from the larger following species by the much livelier tint of the fascia, which with it is also placed further towards the apex of the wing.”

“One ♂, two ♀ agreeing in size, I received from Von Heyden, from the neighbourhood of Frankfort-on-the-Main, where the insect was bred in April, May, and August, from the leaves of the garden rose. Bouché takes it in his garden, at Berlin, sometimes very abundant, and certainly double-brooded.”

I believe this species is the *aurella* var. ζ of Haworth, and exists in several cabinets; I have it, placed as the *nigrociliella* of Stephens, (which however it cannot be, as that insect must be closely allied to *subbimaculella*, if indeed it be a distinct species), and Mr. Bedell has it under the same name; and, early in June, this summer, I took several specimens off a low fence near Beckenham: the violet tint at the base of the anterior wings readily distinguishes it from its congeners.

“Sp. 6. *Argentipedella*, Z.” Linn. Ent. vol. 3, p. 316.

“Alis anterioribus fuscis, violaceo-nitidulis, fascia paulo post medium alba; capillis ♂ nigris, ♀ ferrugineis; conchula antennarum exalbida majore.”

“Larger than the preceding, sometimes much larger, with very peculiarly expanded eye-caps, and on the anterior wings, placed more towards the base, with a shining white, not silvery, fascia, by which it differs from *aurella*, *lemniscella* and *centifoliella*.”

“In the very fine pair which I have here described, and with which eleven specimens received from Bouché agree, the brownish-violet scales on the cilia at the apex of the anterior wings pass without any distinct margin into brown, but this suddenly into clear grey; so that the scales are wanting which, radiating from the apex of the wing, present the appearance of an ocellus. The male I took on the 17th of May, the female on the 25th of May, both in birch woods near Glogau.”

“This species mines in the birch leaves near Berlin (according to Bouché).

This is the *medio-fasciella* of Haworth; but I much doubt whether Haworth's description is sufficiently precise to enable his name to stand. He says, “*Priori** *simillima* at *minor*, *alis anticis*

* The preceding to which he alludes, *unifasciella*, is, it appears to me, a faded specimen of the species called, in this country, *Albinella*: the head is entirely wanting, and the wings are very much wasted.

atris, fascia argentea magis in medio, et certo situ lente aliquantum interrupta. Posticæ latiores quam in priore saturatiores, seu nigro-plumbeæ."

The *aliquantum interrupta* gives one of the most decisive characters of the species, and Haworth's original specimen is fortunately in very fine condition, and shows this character well.

"Sp. 7. *Argyropeza*, Z." Linn. Ent. vol. 3, p. 320.
Vol. 2, pl. 2, f. 49, 50.

"Alis anterioribus grosse nigricanti-squamatis, postice violascenti-subnitidulis, apice rotundato, albido-ciliato, maculis duabus mediis oppositis albidis; capillis ferrugineis; conchula exalbida."

"? Var. *b.* major; macula costali alarum anteriorum apici propiori."

"? Var. *c.* major; strigula ex costa prope basim obliqua dorsoque basali albidis, ceterum ut *b.*"

"Distinct from all the preceding by the head of the male being similarly coloured to the female. Besides, the anterior wings, which appear widened and rounded posteriorly, have in the middle two, not sharply defined, whitish opposite spots; and in the larger and questionable variety *c.*, another oblique whitish spot on the costa near the base."

"I found this species very abundant on the trunks of aspens on the fortifications of this place, on the smooth bark of which they sat, and were easily caught; elsewhere, I have beaten it from the leaves of young aspens. I know not whether I took the varieties *b.*, and in company with the ordinary small specimens.—Period of flight, May. It is probably widely dispersed. It is taken abundantly near Dantzic, by Von Tiedemann (I have before me, from him, a wasted but very recognizable ♀ of var. *c.*) Madam Lienig took it in Livonia; F. v. R. not scarce in Bohemia."

This species comes very near to the *subbimaculella* of Haworth, but appears to me distinct, for the following reasons, 1st, in *subbimaculella* the base of the wing is very generally yellowish, broadest on the inner margin. 2nd, the spots, though placed apparently in the same position, are yellowish, not whitish. (Haworth must have had a bad specimen before him when he said "*silvery*;" his original specimen labelled by him is by no means a fine one.) 3rd, The cilia at the apex of the wing are also yel-

lowish; whereas, in *argyropeza*, Zeller says, "Cilia clear-grey, scarcely tinted, a little yellowish." 4th. Our insect swarms on oaks in June; his frequents aspens in May. The second and third of these differences are commented on by Zeller in a note; but he says, "the third and weightiest arises from the want of certainty that this *subbimaculella* is a *Nepticula*, since the genus *Microsetia* contains smooth-headed and rough-headed species,—species with and species without the enlarged basal joint of the antennæ; and in no species does Stephens inform us of the nature of the parts of the head."

"Sp. 8. *Intimella*, Z." Linn. Ent. vol. 3, p. 323.

"Alis anterioribus violaceo-fuscis, macula dorsi medii argentea, ciliis externe canis; capillis ferrugineis; antennis cum conchula exalbidis."

"A single female, the size of a small *argyropeza*, and very similar to the female of that species. Ground-colour of the anterior wings dark violet brown, the cilia at the apex encompassed with a dark ring of scales. The specific distinctions appear to be the following: the costal spot is wanting on the anterior wings, as also the other spot; only, the inner marginal spot is here, nearly triangular, placed on the margin in its usual situation, but *shining silvery white, &c.*"

"I took this single specimen near Glogau; but I know nothing further about it."*

"Sp. 9. *Hemargyrella*, Koll." Linn. Ent. vol. 3, 323.

"Alis anterioribus exalbidis nitidulis, apice fusco-violaceo; capillis pallidis; antennis fusciscentibus, conchula exalbida."

"Smaller than *argyropeza*, easily known from it, since the anterior wings are yellowish white from the base to rather beyond the middle.

"I took this scarce species in May twice on the trunks of aspens on the fortifications of this place; I saw a single specimen from the neighbourhood of Laubau, and two others from the Riesengebirge. Besides it occurs near Vienna in beech woods. Closely allied apparently to *floslactella* of Haworth, but in that species is a distinct black fascia across the yellowish portion of

* Mr. Sircom met with this species among *sallows*, near Brislington, about the middle of June, this year.

the anterior wings, near the middle, of which Zeller makes not the slightest mention.

“NOTE.—I find that Haworth’s *floslactella*, var. β , wants the black fascia above alluded to, and is probably therefore identical with *hemargyrella*.

“Sp. 10. *Sericopeza*, Z.” Linn. Ent. vol. 3, p. 325.
Vol. ii. pl. 2, f. 48.

“Alis anterioribus fuscis, basi, fascia curva media maculisque duabus oppositis posticis pallidis; capillis ferrugineis, conchula albida, antennis fusciscentibus.”

“The size of var. *b* and *c* of *Nept. argyropeza*, known by the yellowish fascia, and the posterior opposite spots of the anterior wings. The much smaller *trimaculella*” (he means *cursoriella*) “wants the fascia, and has only a yellowish streak from the base along the inner margin. *Assimilella* is likewise much smaller, and has, instead of the fascia, a discoïdal spot, which is almost connected with the yellowish base.

“The equally small *rufella* has, instead of the yellowish fascia, near the basal third of the wing clear yellow; but is especially distinguished from all other species of *Nepticula* by the red abdomen of the male.”

“Occurs in the neighbourhood of Berlin and Vienna. Many specimens are taken on the trunks of trees in the Thiergarten at Berlin. Near Vienna, Mann finds it on garden palings under acacias, in the Prater on maple, first in May, then in July and August. He took it also near Salviano in Tuscany on maple, at the beginning of May.”

“This species is also closely allied to *floslactella*. Indeed *floslactella* seems exactly intermediate between this and the preceding, having a dark fascia, which *Hemargyrella* wants, and wanting the dark patch (between the yellow base and yellow medial fascia) of *sericopeza*.

“Sp. 11. *Cursoriella*, Heyden.” Linn. Ent. vol. 3, p. 326.

“Alis anterioribus fuscis, striola dorsi ex basi prodeunte maculisque duabus posticis oppositis flavidis; capillis ferrugineis; conchula exalbida, antennis fusciscentibus. (1 ♀ Mus. Mann.)”

“Only a single but very beautiful female, communicated from V. Heyden to Mann. It appears very like my ♀ of *argyropeza*,

which it also resembles in size; but on the anterior wings of *cursoriella* the two spots lie more obliquely to one another, and its inner margin at the base is yellow. The likewise very similar *assimilella* wants the inner marginal streak, which also has a yellowish spot on the disk.

"At Frankfort-on-the-Main (V. Heyden) and at Vienna in the Prater, on fences in June. (Mann.)"

I should have said undoubtedly this was the *subbimaculella* of Haworth; but that Zeller says "cilia clear grey." The yellow base (which is so frequently continued on the inner margin), the yellow spots placed obliquely to one another, are here fully described; but Zeller says cilia clear grey (hell grau). Now in our species they are the same colour as the spots, yellowish.

Zeller gives, as a doubtful synonyme, *trimaculella*, Haworth, Steph. Now in the first place the *trimaculella* of Stephens is not the *trimaculella* of Haworth: it is quite true that Mr. Stephens has copied Haworth's description, but he has added to it four words, which will not apply to Haworth's species. At the same time the remainder of Haworth's description will hardly apply to any other species; so that the description in the Illustrations being a patchwork concern, half applying to one species and half to another, is good for nothing. The *trimaculella* of Haworth is the *rufella* of Zeller; and Haworth's name, having priority, must stand.

Haworth says (Lepidop. Brit. 583, 82):

"Alis atris, striâ latâ basi, maculisque duabus posticis flavicantibus.

"Habitat forte in populo. Imago i. Jul. Populi truncis, at rarissime. Exemplarium unicum quod cepi sedentem solum vidi.

"Expansio alarum $2\frac{3}{4}$ lin.

"Descriptio: præcedentibus minor. Alæ anticæ atræ, striâ latissimâ emarginatâ, a basi fere ad medium lutescente, maculisque duabus posticis oppositis marginalibus fere confluentibus flavescens."

Stephens says (Illustr. 4, 267):

"Alis anticis atris, striâ latâ basi, maculisque duabus posticis flavicantibus.

"Anterior wings deep black, with a very broad emarginated yellowish streak, reaching from the base to near the middle of THE INNER MARGIN, and two spots towards the apex, placed one on the costa, the other towards the hinder angle and sometimes nearly confluent: posterior wings dusky black."

"Rare: found at the beginning of July in the vicinity of London, in gardens."

NOTE.—This is unfortunately not an isolated instance of Henthorn's good descriptions being spoiled by the interpolation or addition of two or three words by Mr. Stephens. And Mr. Stephens must not be surprised at continental entomologists criticising severely his Illustrations, which were written, especially the *Micro-Lepidoptera*, in much less time than is absolutely necessary for the examination of these minute insects. English entomologists, who have access to Mr. Stephens, are aware that he really does know a very great deal about insects, and far more than any one, from studying his Illustrations, could imagine; but foreign entomologists have not the same means of satisfying themselves upon this point, and therefore Mr. Stephens must excuse their passing harsh judgments upon him.

“Sp. 12. *Assimilella*, Metzner.” Linn. Ent. vol. 3, p. 327.

“Alis anterioribus fuscis, basi, macula disci prope eam maculisque duabus posticis oppositis exalbidis; capillis ferrugineis; conchula albida, antennis fuscescentibus. (Specim. 2, Mus. Metzner.)”

“The size of *argyropeza* ♀ differs from that in the yellowish-white spots on the anterior wings being placed more posteriorly, and by the presence of a large pale spot on the disk near the base. *Sericopeza* is slightly larger, and has, instead of this spot, a fascia. *Rufella* ♀ has the entire base, as a very large spot, yellowish.”

“A fine female, and a specimen which wants the posterior wings and abdomen (so that I can only suspect it to be a female), were sent me by Metzner to describe; both are from Vienna.” In possessing three spots on the anterior wings, this offers some resemblance to Bedell's *quinquella* (Zoologist, p. 1986), but in that insect the odd spot is near the apex; in *assimilella* it is near the base; besides all the *quinquella*, I have seen, have the head black, whereas *assimilella* has it reddish.

“Sp. 13. *Rufella*, Z. (Scop.?)” Linn. Ent. vol. 3, p. 328.

“Alis anterioribus fuscis, basi tale maculisque duabus posticis oppositis pallidis; abdomine pedibusque maris vitellinis, feminae cinerascensibus.”

“Very distinct in the male sex, by the egg-yellow coloured abdomen, as in *Psecad. cchiella*; the female is known, in this genus, by the large pale-yellow spot which proceeds from the base of the anterior wings, and takes up nearly the whole breadth of the wing.”

"This scarce species occurs near Glogau, where I took three specimens, one of which is a female, beating them out of an elm bush in the middle of May; also near Reichstadt, in Bohemia, (F. R.), and near Vienna (Metzner). If Scopoli's *Phal. rufella* be identical with my species it occurs also near Laybach."

I do not think Scopoli's description is sufficiently precise: he says—"Anterior wings dirty ashy-grey; body and legs red; posterior wings very narrow." He makes no mention of *any spots* on the wings. His description of the "body and legs red" answers exceedingly well for the male of this species; and had he omitted to mention the anterior wings altogether I should have considered his name entitled to stand, but as it is I think there cannot be two opinions about the propriety of sinking it.

Haworth's *trimaculella* (see description among the remarks on *cursoriella*) is manifestly this species, which is found sparingly near London on the trunks of poplars in May and July, and his name will stand.

Zeller alludes (p. 330) to some other species of *Microsetia* of Stephens, which may belong to this genus; viz. *floslactella*, *violaceella*, *pygmcælla*, and *sericiella*. *Floslactella* and *pygmcælla* I have already alluded to: *violaceella* (described by Haworth from a single specimen) I conceive to be a fine specimen of *ruficapitella*: *sericiella* has nothing whatever to do with this genus, nor even with the genus *Elachista*, and is, I believe, identical with the *T'magma saltatricella*, figured in Duponchel's Supp. vol. iv. pl. 86. fig. 12.

In Zeller's genus *Trifurcula* he has two species.

"Sp. 1. *Pallidella*, F. v. R." Linn. Ent. vol. 3, p. 332.
Vol. ii. pl. 2, figs. 51, 52.

"Alis anterioribus exalbidis, obscurius grosse squamatis; posterioribus cinerascentibus, exalbido-ciliatis."

"Larger than the following, size of *Cemi. spartifoliella*; wings silky; the anterior very pale yellowish-white on both sides; on the upper side with coarse very pale ochreous scales, more numerous towards the apex."

"Mann discovered this scarce insect, and took it in May and June, near Tivoli, where it flew heavily among long grass late in the evening; also near Pisa it frequented the long grass, mixed with low bushes, in the marshes."

“Sp. 2. *Immundella*, Z.” Linn. Ent. vol. 3, p. 332.

“Alis anterioribus nitidulis, albido-griseis, obscurius grosse squamatis; posterioribus griseo-ciliatis.”

“Distinguished from the larger preceding species by its dirty grey but rather shining colour; from *Buccul. cristatella* by the lighter-coloured, coarsely-scaled anterior wings,” “the possession of a tongue and a quite different neuration of the wings.”

“This is abundant near Reichstadt, in Bohemia, on oaks, in July (F. R.). I took it once at Glogau, towards sunset, on the 8th of June, in a birch wood on *Spartium scoparium*, in company with *Anarsia spartiella* and *Ccmiostoma spartifoliella*. Mann obtained some specimens from *Spartium*, in Tuscany, among the Apennines, near Pratovecchio.”

This insect is in several cabinets as the *pulverella* of Bentley, but I believe has never been described; Bentley's name will therefore sink and Zeller's be retained. Zeller first described this in the *Isis*, 1839.

Zeller's genus *Tischeria* contains five species, two of which only are known to us, and form part of the genus *Apheloseitia* of Stephens.

“Sp. 1. *Complanella*, Hübn.” Linn. Ent. vol. 3, p. 335.
Vol. ii. pl. 2, figs. 53—57.

This is the *rufipennis* of Haworth, the *rufipennella* of Stephens, and abounds on oaks in May and June.

Haworth, however, gives unhesitatingly as a synonyme *Tinea rufipennella*, Hübn., which is a *Gracillaria!* and in Stephens' description is an important error; instead of “apex palest” it should be “apex darkest,” as indeed the Latin diagnosis shows: the *fulvescens* of Stephens (Illustr. 4, 289) is also this species.

“Sp. 2. *Ricciardella*, Costa.” Linn. Ent. vol. 3, p. 337.

Zeller merely alludes to Costa's figure and description of this insect (Faun. Neapol. Tin. p. 16, No. 14, tab. 3, fig. 7), which do not agree with one another. Zeller had not, I believe, ever seen the species.

“Sp. 3. *Emyella*, Dup.” Linn. Ent. vol. 3, p. 338.

Undoubtedly the *Recurvaria marginata* of Haworth, the *Apheloseitia marginata* of Stephens; neither of these authors, however, make any allusion to the dark spot at the anal angle of the anterior wings. This species is common here in May among oaks, but seems to occur in Germany only very rarely.

"Sp. 4. *Gaunacella*, F. R." Linn. Ent. vol. 3, p. 338.

"Alis anterioribus virescenti-fuscis, nitidulis, palpis flavidis."

Rather larger than the former, but much smaller than the following, and distinguished from it by the narrower anterior wings, and their pale colour without any violet tint. It resembles *Bucculatrix nigricomella* in the anterior wings, but this has a deep black tuft of hair on the head, and a large clear-yellow eye-cap, and the consideration of the structure of the antennæ always readily distinguishes this and other more remote concolorous greenish brown species from our *Tischeria*.

"The single female in my collection is the same size as the two males, and a somewhat violet, less yellowish tint of the anterior wings and concolorous antennæ.

"Mann discovered this species at Vienna; he took it also near Pratovecchio, in Tuscany, on sloe bushes, in the middle of June."

"Sp. 5. *Angusticollella*, Heyden." Linn. Ent. vol. 3, p. 339.

"Alis anterioribus latiusculis, cupreo-fuscis, nitidulis, costa ex basi chalybea, antennis apice albido."

"In size this comes next to *complanella*; differs from the preceding in the broader, pale coppery brown anterior wings, with the costa steel-coloured, and the whitish apices of the antennæ."

"This species was first discovered at Frankfort-on-the-Maine. From the discoverer Heyden I received a pair bred from the larvæ. The larva, the same form as that of *complanella*, mines in rose-leaves. Schläger found this species at Jena, in May, on fences principally under sloe-bushes. In Tuscany it is not very scarce in May, on sloe-bushes, near Leghorn and Pisa."

Having now come to the end of Zeller's paper, I would advise all my readers to get the "Linnæa," and read Zeller's own descriptions for themselves. They certainly are models of what descriptions ought to be; and the plan of mentioning at first what peculiar character distinguishes each species from its congeners saves much time to the entomologist, who, having met with a new species, wishes to find if it has been described by Zeller. I observe we are promised in the next volume of the "Linnæa" a monograph by Zeller of the genus *Colcophora*, corresponding to our *Porrectaria*, and a portion of the genus *Astyages*, the appearance of which will be anxiously looked for by a large number of entomologists in this country.

